PDR RID Report

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Document

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Section **Page** **Figure Table**

Category Name Hardware
Actionee HAIS
Sub Category Capacity
Subject On-line storage requirements

Description of Problem or Suggestion:

Current estimates are low for online storage requirements. Estimates are for at best 4x the operational requirement. A factor of 8x would be a better fit.
Apparently the entire load, including multiple product generation, calibration reprocessing, hold areas for failed products, software checkout areas, etc. was not understood during development of estimates. Also ancillary data storage should be sized (other data imported to storage).

Originator's Recommendation

Increase storage, at a minimum to the release "B" level in Release "A" timeframe. During the first 44 days of TRMM product generation, failed processing staging and calibration checkout needs will dominate use of extra space. After Release "B" TRMM reprocessing and EOS AM Product, generation, calibration reruns, failed processing staging will swamp the system.
This is exceedingly important since the storage is also geographically distributed as well as being marginally sized.

GSFC Response by: **GSFC Response Date**

HAIS Response by: Suhrstedt **HAIS Schedule**
HAIS R. E. A. Lake **HAIS Response Date** 5/18/95

The current estimates for Release-A on-line storage requirements resulted from the SDPS PDR preliminary sizing efforts. The estimates bear no relationship to "at best 4x the operational requirement" as stated in the RID. Therefore, it does not appear relevant to adjust them for a "factor of 8x" as the RID suggests. The sizing of the disk storage, in particular, was a snapshot of the predicted required operational capacity.

The full details of the sizing rational are available in the March 1995 Release of the Science Data Processing Segment/Element Design specification for the ECS Project (Reference #305-CD-002-002). The on-line capacity was determined based on the predicted production volumes and patterns, staging needs for the electronic distribution, and the minimum FSMS staging requirements.

The staging capacities associated with TSDIS ingest, V0 re-ingest, ancillary ingest, calibration reprocessing, hold areas for failed products, and software checkout areas were not included in sizing because of the lack of quantitative analysis at the time. These needs remain to be further examined prior to finale storage quantities determination for procurement. The Data Processing Subsystem activity assumptions were based on the Performance Modeling group's static analysis of the AHWGP data for epoch B (fourth quarter 1997). The analysis included multiple product generation. For the sites with minimal or no production requirements in release A a nominal size of 10 GB was allowed for that portion of disk.

For sizing of the user distribution disk area, User Modeling group's predictions of the expected granule sizes and number of users was used. Granule size was based on the largest and the "next largest" data granules requested. And the average number of repository user's per hour was used to estimate the number of users. These predictions were applied as a function of electronic distribution disk space, staging space to support production, and electronic ingest disk space to estimate the total disk space needed.

This sizing is only for the initial TRMM support for 44 days. Additional hardware will be rolled in in increments after this time to accommodate the TRMM mission requirements after that time. There is, therefore, no need to increase the Release A on-line storage to Release B levels immediately at Release A roll-out. The sizing for these increments will be finalized for and presented at Release B IDR.

Further sizing effort for Release-A CDR and Release-B PDR will include data analysis from AHWGP, Ad Hoc Working Group on Consumers (AHWGC), User Modeling, Data Modeling, Cost Modeling, IRD/ICD, etc. Sizing to accommodate failed products, calibration reprocessing, and software checkout areas will be examined at that time. The strategy of 44 - day Release-A sizing will

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The full details associated with the PDR sizing efforts are now available within the March 1995 release of the Science Data Processing Segment (SDPS) Segment/Element Design specification for the ECS Project (Reference #305-CD-002-002). The specific sections of interest, with respect to on-line storage sizing in the Data Server are:

o 7.7.1 (Working Storage) HWCI Design Rationale -- which includes a discussion of major assumptions, methods of estimation, and capacities predicted for the TRMM sites,

o Appendix A, which describes the DAAC unique features of the ECS for GSFC, LaRC and MSFC and includes relevant equipment class lists and topology diagrams supporting the HWCI write-ups previously referenced.

Please refer to the referenced document and sections for details. Additional HWCI write-ups are also supplied for the Data Processing and Planning Subsystems within the referenced design specification. Staging capacities are provided in similar HWCI design rationale sections.

It is also pertinent to note, that additional Release-B hardware capacity, which is present at the sites throughout the flight operations period of Release-A, were not discussed at the Release-A PDR. Once through site acceptance tests, additional staging capacities, far in excess of the Release-A capacities, will be available to support TRMM operations at the large DAAC sites (TBR through operations planning).

Status **Closed** **Date Closed** **7/6/95** **Sponsor** **Marinelli**

****** **Attachment if any** ******
